BRUHATH BANGALORE MAHANAGARA PALIKE
BYATARAYANAPURA DIVISION

Name of the work: Package No.02 (Package consists of 14 works)

First and Part Bill
Test Reports

TEJUS
CONSULTANTS

PRECAST SLAB (CORE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Name of Work	:	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
No.of Sample Tested	:	3
Date of Testing	:	29.11.2018
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{20} - 100mm thick

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	90.00	0.456	2580.43	1.80	0.960	38.41	19.56	21.13	20.28	25.35
2	50.00	90.00	0.450	2546.48	1.80	0.960	38.33	19.52	21.08	20.24	25.30
3	50.00	90.00	0.420	2376.71	1.80	0.960	38.95	19.84	21.42	20.57	25.71

Note:

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3. Any Query regarding the report must be reported reported within 15days from the date of testing.

Consultant's Representative

Assistant Executive Engineer,
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Yelahanka Zone, B.B.M.P.,
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TEJUS
CONSULTANTS

KERB STONE (CORE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Name of Work	:	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
No.of Sample Tested	:	3
Date of Testing	:	29.11.2018
Technical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{15}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	85.00	0.420	2516.52	1.70	0.960	33.00	16.81	18.15	17.43	21.78
2	50.00	85.00	0.415	2486.56	1.70	0.960	32.56	16.58	17.91	17.19	21.49
3	50.00	85.00	0.420	2516.52	1.70	0.960	32.25	16.42	17.74	17.03	21.29

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Consultant's Representative

A.N.D
AE(Ret)

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TEJUS
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Test Report on Cement

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Benaka Developers & Project Pvt.Ltd.
Sample ID	Cement
Date of Sample Tested	12.12.2018 22-11-18
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	39 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	345 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	3mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	25 % to 35

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TEJUS CONSULTANTS

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TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Consultants	Tejus Consultants, Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SIEVE ANALYSIS

Total Weight:	**3000** gms		
Type of Material	**Fine aggregate (River Sand/ M sand)**	**Proposed Use**	concrete
Sample Location	At Site/Plant	**Date of Sampling**	12.12.2018
		Date of Testing	12.12.2018

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing (Zone-II)
10.00 mm	0	0	0	100.00	**100**
4.75 mm	208	208	6.93	93.07	**90 - 100**
2.36 mm	312	520	17.33	82.67	**75 - 100**
1.18 mm	412	932	31.07	68.93	**55 - 90**
0.600 mm	482	1414	47.13	52.87	**35 -59**
0.300 mm	754	2168	72.27	27.73	**8-30**
0.150 mm	620	2788	92.93	7.07	**0 - 10**
Pan	212	3000			-

Remarks : Satisfactory / Not Satisfactory

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Fine aggregate (River Sand/ M sand)	**Proposed Use**	PCC
Location/Source	At Site/Plant	**Date of Sampling**	12.12.2018
Period of Soaking	24 hours	**Date of Testing**	12.12.2018

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.	664	638	678	
B	Weight of oven - dry sample gm.	652	628	668	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1693	1678	1702	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.650	2.672	2.661	**2.661**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.840	1.592	1.497	**1.643**

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GRADATION FOR GSB
(As per MORT&H 400-2,Grading-1)

Name of Work	:	**Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura**
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	**Benaka Developers & Project Pvt.Ltd.**
Date of Testing	:	01.01.2019
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	At plant	Date of Sampling:	01.01.2019
Type of material & Purpose:	GSB	Date of testing:	01.01.2019
		Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	100.00
26.5	2850	2850	28.50	71.50	55-75
4.75	5521	8371	83.71	16.29	10-30
0.075	1420	9791	97.91	2.09	0-10
Pan	209.0				
Total	10000.0				

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Authorised Signatory

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Project	**Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura**		
Client	**BRUHAT BANGALORE MAHANAGARA PALIKE**		
Consultant	**M/s Tejus Consultants**		
Contractor	**Benaka Developers & Project Pvt.Ltd.**		
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))			
Date:	02.01.2019		
Layer no. or level	GSB layer		
Depth of hole	150mm		
Field density:	1	2	3
Wt. of wet material from hole (Ww) gms.	5600	5550	5580
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9310	9350	9320
Wt. of sand in cone (w3) gms.	870	870	870
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3820	3780	3810
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	1.94	1.94	1.93
Moisture meter reading(moisture content)	9.50	9.50	9.50
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	1.77	1.77	1.77
MDD	1.80	1.80	1.80
OMC	9.70%	9.70%	9.70%
% compaction obtained	98.18	98.33	98.08
% compaction required	98%	98%	98%

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Project	**Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura**
Client	**BRUHAT BANGALORE MAHANAGARA PALIKE**
Consultant	**M/s Tejus Consultants**
Contractor	**Benaka Developers & Project Pvt.Ltd.**

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))

Date:	02.01.2019		
Layer no. or level	GSB layer		
Depth of hole	150mm		
Field density:	1	2	3
Wt. of wet material from hole (Ww) gms.	5600	5550	5580
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9310	9350	9320
Wt. of sand in cone (w3) gms.	870	870	870
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3820	3780	3810
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	1.94	1.94	1.93
Moisture meter reading(moisture content)	9.50	9.50	9.50
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	1.77	1.77	1.77
MDD	1.80	1.80	1.80
OMC	9.70%	9.70%	9.70%
% compaction obtained	98.18	98.33	98.08
% compaction required	98%	98%	98%

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GRADATION FOR GSB
(As per MORT&H 400-2,Grading-1)

Name of Work	:	**Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura**		
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	:	M/s Tejus Consultants		
Contractor	:	**Benaka Developers & Project Pvt.Ltd.**		
Date of Testing	:	02.01.2019		
Type of Mix	:	GSB		
Sample I/D	:	GSB1		
Sample Location:	At plant		Date of Sampling:	02.01.2019
Type of material & Purpose:	GSB		Date of testing:	02.01.2019
			Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	100.00
26.5	2850	2850	28.50	71.50	55-75
4.75	5520	8370	83.70	16.30	10-30
0.075	1420	9790	97.90	2.10	0-10
Pan	210.0				
Total	10000.0				

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Project	**Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura**
Client	**BRUHAT BANGALORE MAHANAGARA PALIKE**
Consultant	**M/s Tejus Consultants**
Contractor	**Benaka Developers & Project Pvt.Ltd.**

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))

Date:	03.01.2019		
Layer no. or level	GSB layer		
Depth of hole	150mm		
Field density:	1	2	3
Wt. of wet material from hole (Ww) gms.	5610	5580	5600
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9300	9335	9310
Wt. of sand in cone (w3) gms.	870	870	870
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3830	3795	3820
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	1.93	1.94	1.94
Moisture meter reading(moisture content)	9.50	9.50	9.50
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	1.77	1.77	1.77
MDD	1.80	1.80	1.80
OMC	9.70%	9.70%	9.70%
% compaction obtained	98.10	98.47	98.18
% compaction required	98%	98%	98%

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Apply. NO
AE(WS)

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AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

TEJUS CONSULTANTS

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	Benaka Developers & Project Pvt.Ltd.		
Proposed Use	WMM	**Date of Sampling**	**03.01.2019**
Sample Location	**At plant**	**Date of Testing**	**03.01.2019**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	360.00	360.00	375.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	280.00	265.00	275.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	80.00	95.00	100.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	22.22	26.39	26.67	
5	Average Aggregate impact value	(%)	25.09			Max - 30 %

Remarks : ✓ Satisfactory / Not Satisfactory

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FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Type of Material	WMM	**Proposed Use**	WMM
Sample Location	At plant	**Date of Sampling**	**03.01.2019**
		Date of Testing	**03.01.2019**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	844	70	774	68
16.0	12.5	1256	135	1121	120
12.5	10.0	468	70	398	64
10.0	6.3	520	60	460	38
Total		**3088**	**335**	**2753**	**290**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.85
Elongation Index(%):	10.53
Combined FI+EL (%)	21.38

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Bangalore,

TEJUS
CONSULTANTS

GRADATION FOR WMM
(As per MORT&H 400-11)

Name of Work	:	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Date of Testing	:	**03.01.2019**
Type of Mix	:	WMM
Sample I/D	:	WMM 1

Sample Location:	At plant	**Date of Sampling:**	**03.01.2019**
Type of material & Purpose:	WMM	**Date of testing:**	**03.01.2019**
		Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained (gm)	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	300	300	3.00	97.00	95-100
22.4	2550	2850	28.50	71.50	60-80
11.2	1800	4650	46.50	53.50	40-60
4.75	1500	6150	61.50	38.50	25-40
2.36	1300	7450	74.50	25.50	15-30
0.6	850	8300	83.00	17.00	8.0-22.0
0.075	980	9280	92.80	7.20	0-8
Pan	720				
Total	10000				

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AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

TEJUS CONSULTANTS

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	Benaka Developers & Project Pvt.Ltd.		
Proposed Use	WMM	**Date of Sampling**	**04.01.2019**
Sample Location	**At plant**	**Date of Testing**	**04.01.2019**

Sl. No.	Description		Test No.			Spec Limit (%)
			1	2	3	
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	344.00	325.00	385.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	265.00	245.00	294.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	79.00	80.00	91.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	22.97	24.62	23.64	
5	Average Aggregate impact value	(%)	23.74			Max - 30 %

Remarks : ✓ Satisfactory / Not Satisfactory

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AE(RD)

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FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Type of Material	WMM	**Proposed Use**	WMM
Sample Location	At plant	**Date of Sampling**	**04.01.2019**
		Date of Testing	**04.01.2019**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	875	70	805	60
16.0	12.5	1210	120	1090	120
12.5	10.0	455	78	377	64
10.0	6.3	510	66	444	39
Total		**3050**	**334**	**2716**	**283**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.95
Elongation Index(%):	10.42
Combined FI+EL (%)	21.37

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Authorised Signatory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date of Testing	**04.01.2019**
Layer no. or level	WMM I layer
Depth of hole	250mm

Field density:	1	2	3
Wt. of wet material from hole (Ww) gms.	6200	6155	6230
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9705	9705	9702
Wt. of sand in cone (w3) gms.	835	842	830
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3460	3453	3468
Bulk density of sand (ys)gm/cc	1.31	1.32	1.31
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.35	2.35	2.35
Moisture meter reading(moisture content)	12.45	12.56	12.57
Result			
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.09	2.09	2.09
MDD	2.13	2.13	2.13
OMC	12.60%	12.60%	12.60%
% of Compaction Obtained	98.00	98.14	98.15
Compaction Required	98%	98%	98%

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Authorised Signatory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Project	Improvements to roads and drains from Bhuvaneshwarinagar Park via Gopalappa Layout to Cofee board Layout Park Road and Surrounding areas (Cubic Apartments Area) in Ward No.7,Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Type of Material	WMM	**Proposed Use**	WMM
Sample Location	At plant	**Date of Sampling**	**08.01.2019**
		Date of Testing	**08.01.2019**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	855	68	787	61
16.0	12.5	1210	105	1105	110
12.5	10.0	460	70	390	60
10.0	6.3	510	62	448	35
Total		**3035**	**305**	**2730**	**266**

Note: Minimum 200 Pcs should be taken on each fraction of test

	Flakiness Index(%):	10.05
	Elongation Index(%):	9.74
	Combined FI+EL (%)	19.79

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AE(Civil)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Authorised Signatory

TEJUS
CONSULTANTS

GRADATION FOR WMM
(As per MORT&H 400-11)

Name of Work	:	Improvements to roads and drains from Bhuvaneshwarinagar Park via Gopalappa Layout to Cofee board Layout Park Road and Surrounding areas (Cubic Apartments Area) in Ward No.7,Byatarayanapura
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Date of Testing	:	**08.01.2019**
Type of Mix	:	WMM
Sample I/D	:	WMM 1

Sample Location:	At plant	**Date of Sampling:**	**08.01.2019**
Type of material & Purpose:	WMM	**Date of testing:**	**08.01.2019**
		Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained (gm)	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	410	410	4.10	95.90	95-100
22.4	2520	2930	29.30	70.70	60-80
11.2	1800	4730	47.30	52.70	40-60
4.75	1600	6330	63.30	36.70	25-40
2.36	1300	7630	76.30	23.70	15-30
0.6	850	8480	84.80	15.20	8.0-22.0
0.075	980	9460	94.60	5.40	0-8
Pan	540				
Total	10000				

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Authorised Signatory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Project	Improvements to roads and drains from Bhuvaneshwarinagar Park via Gopalappa Layout to Cofee board Layout Park Road and Surrounding areas (Cubic Apartments Area) in Ward No.7,Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date of Testing	**08.01.2019**
Layer no. or level	WMM I layer
Depth of hole	250mm

Field density:	**1**	**2**	**3**
Wt. of wet material from hole (Ww) gms.	6135	6110	6225
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9748	9743	9700
Wt. of sand in cone (w3) gms.	835	842	830
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3417	3415	3470
Bulk density of sand (ys)gm/cc	1.31	1.32	1.31
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.35	2.36	2.35
Moisture meter reading(moisture content)	12.45	12.56	12.57
Result			
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.09	2.10	2.09
MDD	2.13	2.13	2.13
OMC	12.60%	12.60%	12.60%
% of Compaction Obtained	98.20	98.51	98.01
Compaction Required	98%	98%	98%

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Authorised Signatory

Assistant Executive Engineer,
Kodigehalli Sub Division,
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Bangalore.

Project	Improvements to roads and drains from Bhuvaneshwarinagar Park via Gopalappa Layout to Cofee board Layout Park Road and Surrounding areas (Cubic Apartments Area) in Ward No.7,Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date of Testing	**09.01.2019**
Layer no. or level	WMM I layer
Depth of hole	250mm

Field density:	**1**	**2**	**3**
Wt. of wet material from hole (Ww) gms.	6150	6100	6212
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9735	9736	9710
Wt. of sand in cone (w3) gms.	835	842	830
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3430	3422	3460
Bulk density of sand (γs)gm/cc	1.31	1.32	1.31
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.35	2.35	2.35
Moisture meter reading(moisture content)	12.45	12.56	12.57
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.09	2.09	2.09
MDD	2.13	2.13	2.13
OMC	12.60%	12.60%	12.60%
% of Compaction Obtained	98.06	98.14	98.09
Compaction Required	98%	98%	98%

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Bangalore.

N.D
AE(121)

BRUHATH BANGALORE MAHANAGARA PALIKE
BYATARAYANAPURA DIVISION

Name of the work: Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura

First and Part Bill
Test Reports

TEJUS
CONSULTANTS

PRECAST SLAB (CORE) TEST REPORT

lient	:	Bruhat Bangalore Mahanagara Palike
ontractor	:	Benaka Developers & Project Pvt.Ltd.
ame of Work	:	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
o.of Sample Tested	:	3
ate of Testing	:	22.11.2018
chinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
ade of Concrete	:	M_{20} - 250mm Thick

.No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	100.00	180.00	3.400	2405.01	1.80	0.960	159.00	20.24	21.86	20.99	26.24
2	100.00	180.00	3.450	2440.38	1.80	0.960	158.35	20.16	21.77	20.90	26.13
3	100.00	180.00	3.436	2430.47	1.80	0.960	158.70	20.21	21.82	20.95	26.19

ote:

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Asstly.E.E.D
AE(Ly)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

Test Report on Cement

Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Benaka Developers & Project Pvt.Ltd.
Sample ID	Cement
Date of Sample Tested	14.12.2018
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	39 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	356 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	3mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	27.00%	25 % to 35

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TEJUS CONSULTANTS

Authorised Signatory

Ass... Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Fine aggregate (River Sand/ M sand)	**Proposed Use**	PCC
Location/Source	At Site/Plant	**Date of Sampling**	14.12.2018
Period of Soaking	24 hours	**Date of Testing**	14.12.2018

Sl. No.	Test Property		TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.		670	671	682	
B	Weight of oven - dry sample gm.		660	661	672	
C	Weight of Pycnometer Filled with water gm		1275	1275	1275	
D	Weight of Pycnometer + sample + water gm		1688	1692	1698	
E	Bulk specific gravity	$\frac{B}{(C+A-D)}$	2.568	2.602	2.595	2.588
G	Absorption (%)	$\frac{(A-B)*100}{B}$	1.515	1.513	1.488	1.505

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TEJUS CONSULTANTS

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Asstt. Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Consultants	Tejus Consultants, Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SIEVE ANALYSIS

Total Weight:	**3000** gms		
Type of Material	**Fine aggregate (River Sand/ M sand)**	**Proposed Use**	Conrete
Sample Location	At Site/Plant	**Date of Sampling**	14.12.2018
		Date of Testing	14.12.2018

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing (Zone-II)
10.00 mm	0	0	0	100.00	**100**
4.75 mm	215	215	7.17	92.83	**90 - 100**
2.36 mm	320	535	17.83	82.17	**75 - 100**
1.18 mm	450	985	32.83	67.17	**55 - 90**
0.600 mm	500	1485	49.50	50.50	**35 -59**
0.300 mm	720	2205	73.50	26.50	**8-30**
0.150 mm	625	2830	94.33	5.67	**0 - 10**
Pan	170	3000			-

Remarks : ✓ Satisfactory / Not Satisfactory

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Authorised Signatory

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Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhath Bangalore Mahanagara Palike
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.
Total Weight in gm:	3000

SIEVE ANALYSIS

Type of Material	40 mm down size	**Proposed Use**	PCC
Sample Location	At Site/Plant	**Date of Sampling**	14.12.2018
		Date of Testing	14.12.2018

IS Sieve Size	Weight Retained in gm	Cum. Weight Retained in gm	Cumulative Weight Retained in %	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA-2007) % of Passing For Graded Aggregate of Nominal Size
80.00mm	0	0	0.00	100.00	100
63.00mm	0	0	0.00	100.00	-
40.00mm	100	100	3.33	96.67	95-100
20.00mm	1350	1450	48.33	51.67	30-70
10.00mm	950	2400	80.00	20.00	10-35
4.75mm	460	2860	95.33	4.67	0-5
Pan	140	3000	100.00	0.00	

Remarks : Satisfactory / Not Satisfactory

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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS

TEJUS
CONSULTANTS

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Benaka Developers & Project Pvt.Ltd.
Grade of concrete:	M15
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	15.12.2018	22.12.2018	7 days	8.120	22500	211	9.38	9.24
2	15.12.2018	22.12.2018	7 days	8.128	22500	209	9.29	
3	15.12.2018	22.12.2018	7 days	8.130	22500	204	9.07	

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Authorised Signatory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Benaka Developers & Project Pvt.Ltd.
Grade of concrete:	M15
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	15.12.2018	12.01.2019	28days	8.130	22500	341	15.16	15.24
2	15.12.2018	12.01.2019	28days	8.128	22500	348	15.47	
3	15.12.2018	12.01.2019	28days	8.135	22500	340	15.11	

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Authorised Signatory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike		
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura		
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore		
Contractor	Benaka Developers & Project Pvt.Ltd.		
Total Weight:	10000	gms	

SIEVE ANALYSIS

Type of Material	**12.5 mm down size**	**Proposed Use**	Conrete
Sample Location	Plant/site	**Date of Sampling**	28.12.2018
		Date of Testing	28.12.2018

IS Sieve Size (in mm)	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
20.0	0	0	0	100	100
12.5	575	575	5.75	94.25	90-100
10.0	2280	2855	28.55	71.45	40-85
4.75	6500	9355	93.55	6.45	0-10
Pan	645	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

AE(Civil)

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

TEST REPORT					
Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura				
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore				
Contractor	Benaka Developers & Project Pvt.Ltd.				
Total Weight:	10000	gms			
SIEVE ANALYSIS					
Type of Material	20 mm down size		**Proposed Use**	Concrete	
Sample Location	At Plant		**Date of Sampling**	28.12.2018	
			Date of Testing	28.12.2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
40.00 mm	0	0	0	100	**100**
20.00 mm	270	270	2.70	97.30	**95 - 100**
10.00 mm	4900	5170	51.70	48.30	**25 - 55**
4.75 mm	4135	9305	93.05	6.95	**0 - 10**
Pan	695	10000			
Remarks :			Satisfactory / Not Satisfactory		

TEJUS CONSULTANTS

Consultant's Representative

N.D
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Ass... Engineer,
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Bangalore.

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SPECIFIC GRAVITY AND WATER ABSORPTION
FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**Sand/M sand**	**Proposed Use**	Drain
Location/Source	**At Plant/site**	**Date of Sampling**	28.12.2018
Period of Soaking	**24 hours**	**Date of Testing**	28.12.2018

Sl. No.	Test Property		TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.		680	655	668	
B	Weight of oven - dry sample gm.		670	645	658	
C	Weight of Pycnometer Filled with water gm		1275	1275	1275	
D	Weight of Pycnometer + sample + water gm		1698	1685	1695	
E	Bulk specific gravity	B / (C + A - D)	2.607	2.633	2.653	**2.631**
G	Absorption (%)	(A - B) *100 / B	1.493	1.550	1.520	**1.521**

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Test Report on Cement				
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura			
Client	Bruhat Bangalore Mahanagar Palike			
Consultant	TEJUS CONSULTANTS			
Contractor	Benaka Developers & Project Pvt.Ltd.			
Sample ID	Cement			
Date of Sample Tested	28.12.2018			
Sample Supplied By	Agency			
Sl.No.	**Descriptions**	**Test Method as per IS**	**Test Result**	**Requirements as per IS: 12269-1987**
1	a) Initial Setting Time	IS-4031 (Part-5)	38 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	368 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	4 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

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TEST REPORT	
Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to roads and drains Amruthanagara A sector and D Munishamappa Layout in ward no 07.Byataryanapura
Consultants	Tejus Consultants, Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SIEVE ANALYSIS

Total Weight:	**3000**	gms			
Type of Materia	**Fine aggregate (River Sand/M sand)**		**Proposed Use**	Drain	
Sample Location	At Plant/site		**Date of Sampling**	28.12.2018	
			Date of Testing	28.12.2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	240	240	8.00	92.00	**90 - 100**
2.36 mm	285	525	17.50	82.50	**75 - 100**
1.18 mm	510	1035	34.50	65.50	**55 - 90**
0.600 mm	565	1600	53.33	46.67	**35 -59**
0.300 mm	620	2220	74.00	26.00	**8-30**
0.150 mm	560	2780	92.67	7.33	**0 - 10**
Pan	220	3000			-
Remarks :			Satisfactory / Not Satisfactory		

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P2

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TEST REPORT ON PRE-POLISHED DESIGNER CEMENT CONCRETE TILES	
Client	: BRUHATH BANGALORE MAHANAGARA PALIKE
Contractor	: Benaka Developers & Project Pvt.Ltd.
Name of the Work	: Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Date	: 22.11.2018
Technical Reference	: IS: 1237-1980 (Reaffirmed 2006)
No. of Samples Tested	: 12 (Twelve)

I. WET TRANSVERSE STRENGTH TEST:

Sl. No.	Measured Dimension (mm)	Wet Transverse Strength (N/mm^2)	Average (N/mm^2)	Requirement as per IS: 1237-1980 (Reaffirmed 2006)
1	300 x 300 x 21.8	5.9	5.95	The average wet transverse strength should not be less than 3.0 N/mm^2 when 6 full size tiles are tested.
2	300 x 300 x 21.6	6.1		
3	300 x 300 x 23.2	5.8		
4	300 x 300 x 24.5	5.9		
5	300 x 300 x 22.3	5.9		
6	300 x 300 x 21.7	6.1		

II. WATER ABSORPTION TEST:

Sl. No.	Measured Dimension (mm)	Water Absorption (% by Wt)	Average (% by Wt)	Requirement as per IS: 1237-1980 (Reaffirmed 2006)
1	300 x 300 x 22.8	2.5	2.85	The average percentage of water absorption should not exceed 10% when 6 full size tiles are tested.
2	300 x 300 x 21.6	2.8		
3	300 x 300 x 23.2	3.1		
4	300 x 300 x 24.5	2.8		
5	300 x 300 x 22.3	3.0		
6	300 x 300 x 21.7	2.9		

III. HARDNESS:

Sl. No.	Measured Dimension (mm)			Moh's scale Hardness No.
1	300 x 300 x 21.5			5
2	300 x 300 x 21.9			5

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3	300 x 300 x 22.4	5
4	300 x 300 x 23.8	5
5	300 x 300 x 24.1	5
6	300 x 300 x 22.6	5

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory /Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.

Authorised Signatory

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Test Report on Cement

Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Benaka Developers & Project Pvt.Ltd.
Sample ID	Cement
Date of Sample Tested	22.11.2018
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	39 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	345 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	3mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	25 % to 35

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Fine aggregate (River Sand/ M sand)	**Proposed Use**	PCC
Location/Source	At Site/Plant	**Date of Sampling**	22.11.2018
Period of Soaking	24 hours	**Date of Testing**	22.11.2018

Sl. No.	Test Property		TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.		664	638	678	
B	Weight of oven - dry sample gm.		652	628	668	
C	Weight of Pycnometer Filled with water gm		1275	1275	1275	
D	Weight of Pycnometer + sample + water gm		1693	1678	1702	
E	Bulk specific gravity	B / (C + A - D)	2.650	2.672	2.661	**2.661**
G	Absorption (%)	(A - B) *100 / B	1.840	1.592	1.497	**1.643**

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads in Sahakar nagara from Big market to Ayyappa Swamy Temple Via Temple Kanti Sweets and Ganesha Temple Road in ward No 07,Byatarayanapura
Consultants	Tejus Consultants, Bangalore
Contractor	Benaka Developers & Project Pvt.Ltd.

SIEVE ANALYSIS

Total Weight:	**3000** gms		
Type of Material	**Fine aggregate (River Sand/ M sand)**	**Proposed Use**	concrete
Sample Location	At Site/Plant	**Date of Sampling**	22.11.2018
		Date of Testing	22.11.2018

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing (Zone-II)
10.00 mm	0	0	0	100.00	**100**
4.75 mm	208	208	6.93	93.07	**90 - 100**
2.36 mm	312	520	17.33	82.67	**75 - 100**
1.18 mm	412	932	31.07	68.93	**55 - 90**
0.600 mm	482	1414	47.13	52.87	**35 -59**
0.300 mm	754	2168	72.27	27.73	**8-30**
0.150 mm	620	2788	92.93	7.07	**0 - 10**
Pan	212	3000			-

Remarks : ✓ Satisfactory / Not Satisfactory

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